INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2004/003420

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 C12N 15/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC7 C12N 15/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean Patents and Applications for invention

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Delphion, Pubmed, CA, Genbank "(zinc finger OR ZFP) AND (prokary*) AND (regul*)"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2003/048345 (Toolgen Inc.) 12 Jun. 2003	1-9, 13, 20-27, 29-36, 39-56
A		10-12, 14-19, 28, 37
P, X	WO 2004/053130 (Toolgen Inc.) 24 Jun. 2004	1-6, 39-56
P, A		7-13, 20-33
A	WO 2001/60970 (Toolgen Inc.) 23 Aug. 2001	1-33
A	Proc. Natl. Acad. Sci., Vol. 96, Mar. 1999, pages 2758-2763, David J. Segal et al. "Toward Controlling Gene Expression at Will: Selection and Design of Zinc Finger Domains Recognizing Each of the 5'GNN-3' DNA Target Sequences"	1-13, 34-37, 39-56
A	Trends in Biotechnol., Vol.8, No.2, Feb. 2000, pages 77-81, N. Bouhouche et al. "The Origin of Prokaryotic C2H2 Zinc Finger Regulators"	1-8, 39-56

☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents,such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
23 MARCH 2005 (23.03.2005)	**23 MARCH 2005 (23.03.2005)**

Name and mailing address of the ISA/KR
Korean Intellectual Property Office
920 Dunsan-dong, Seo-gu, Daejeon 302-701,
Republic of Korea
Facsimile No. 82-42-472-7140

Authorized officer
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Form PCT/ISA/210 (second sheet) (January 2004)

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	J. Biol. Chem., Vol. 276, No.31, Aug. 2001, pages 29466-29478, B. Dreier et al. "Development of Zinc Finger Domains for Recognition of the 5'ANN-3' Family of DNA Sequences and Their Use in the Construction of Artificial Transcription Factors"	1-13, 34-37
A	Biochemistry, Vol. 41, 2002 pages 7074-7081, T. Sera et al. "Rational Design of Artificial Zinc-Finger Proteins Using a Nondegenerate Recognition Code Table"	39-56

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Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of :

   a. type of material
   - [x] a sequence listing
   - [ ] table(s) related to the sequence listing

   b. format of material
   - [x] in written format
   - [x] in computer readable form

   c. time of filing/furnishing
   - [x] contained in the international application as filed
   - [x] filed together with the international application in computer readable form
   - [ ] furnished subsequently to this Authority for the purposes of search

2. [ ] In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

3. Additional comments:

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☒ Claims Nos.: 38
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

The subject matter of claim 38 relates to a cell selected by the method according to claim 20.
However, it is not clear to carry out a meaningful search.

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

The subjec matters of claims of the present application are divided into 3 groups as follows;

Group I : The subject matter of claims 1-19 and 34-37 relates to methods for regulating expression of a gene in prokaryotic cell using a zinc finger domain and a prokaryotic cell comprising a zinc finger domain.

Group II : The subject matter of claims 20-33 relates to methods for identifying a cell that has an alterd trait relative to a reference cell.

Group III : The subject matter of claims 39-56 relates to polypeptide, nucleic acid, and vector comprising a zinc finger domain.

1. ☐ As all required addtional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☒ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

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PCT/KR2004/003420

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2003/048345A	12.06.2003	US 20040259258A	23.12.2004
		US 20040209277A	21.10.2004
		US 20030194727A	16.10.2003
		EP 1451297A	01.09.2004
		CA 2469477AA	12.03.2003
		AU 2365796AA	17.06.2003
WO 2004/053130A	24.06.2004	US 20050032186A	10.02.2005
WO 2001/60970A	23.08.2001	US 20020061512A	23.05.2002
		NZ 0521293A	25.06.2004
		KR 1084880A	06.09.2001
		JP 2003523195T	05.08.2003
		IL 0151149A0	10.04.2003
		EP 1259597A	27.11.2002
		CN 1416467A	07.05.2003
		CA 2400772AA	23.08.2001
		AU 0137719A	27.08.2001